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**** WARNING ** WARNING ** WARNING ** WARNING ****
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October 24, 2005

07-LA-5763
07-201704

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in LOS ANGELES COUNTY IN POMONA AT THE POMONA MAINTENANCE STATION AT 2650 SOUTH GAREY AVENUE.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on November 3, 2005.

This addendum is being issued to revise the Notice to Contractors and Special Provisions.

In the Special Provisions, Section 8-1.035, "ASPHALT," is added as attached.

In the Special Provisions, Section 10-1.24, "ASPHALT CONCRETE," the following paragraph is added after the first paragraph:

"The Contractor shall choose PG Grade 70-10 or AR Grade 8000 asphalt binder to be mixed with the aggregate for Type A and B asphalt concrete. Asphalt shall conform to the provisions in "Asphalt" of these special provisions."

In the Special Provisions, Section 11, "BLANK," is deleted.

In the Special Provisions, Section 11, "MODIFIED STANDARD SPECIFICATION SECTIONS," is added as attached.

In the Special Provisions, Section 12-8.04, "WOOD WINDOWS," is revised as attached.

07-LA-5763
07-201704

To Proposal and Contract book holders:

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the NOTICE TO CONTRACTORS section of the Notice to Contractors and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by confirmed facsimile to all book holders to ensure that each receives it. A copy of this addendum is available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Office Engineer

Attachments

8-1.035 ASPHALT

Asphalt shall conform to the provisions in Section 92 of Section 11-2, "Asphalts," of these special provisions and these special provisions.

The grade of asphalt to be used will be specified in the various sections of these special provisions.

If steam-refined paving asphalt (AR) is specified, the asphalt shall conform to the following:

Steam-Refined Paving Asphalts

Specification Designation	AASHTO Test Method	Viscosity Grade				
		AR 1000	AR 2000	AR 4000	AR 8000	AR 16000
Tests on Residue from RTFO Procedure: (California Test 346)[a]						
Absolute Viscosity at 60°C, pascal second ($x10^{-1}$)	T202	750-1250	1500-2500	3000-5000	6000-10000	12000-20000
Kinematic Viscosity at 135°C, min., square meter per second ($x10^{-6}$)	T201	140	200	275	400	550
Pen. at 25°C, 100 g/5 sec., min.	T49	65	40	25	20	20
% of orig. Pen.[b] at 25°C, min.	—	—	40	45	50	52
Ductility at 25°C, mm, min.	T51	1000[c]	1000[c]	750	750	750
Tests on Original Asphalt:						
Flash Point, CL.O.C.°C, min.	T48	205	215	225	230	235
Solubility in Trichloroethylene, % min.	T44	99	99	99	99	99

a TFO (AASHTO Test Method T179) may be used but the RTFO shall be the referee method.

b Original penetration as well as penetration after the RTFC loss will be determined by AASHTO Test Method T49.

c If the ductility at 25°C is less than 1000 mm, the material will be acceptable if its ductility at 15°C is more than 1000 mm.

If the Department determines the mass of asphalt from volumetric measurements in conformance with the provisions in Section 92-1.04 of Section 11-2, "Asphalts," of these special provisions, the Engineer will use the Conversion Table in Section 93, "Liquid Asphalts," of the Standard Specifications and the following table:

Average Mass and Volumes of Paving Asphalt

Grade	Liters per Tonne at 15°C	Grams per Liter at 15°C
AR-1000	997	1002
AR-2000	989	1011
AR-4000	981	1020
AR-8000	981	1020
AR-16000	981	1020
PG 58-22	981	1020
PG 64-10	981	1020
PG 64-16	981	1020
PG 64-28	981	1020
PG 70-10	981	1020
PBA 6a	981	1020
PBA 6a (mod)	981	1020
PBA 6b	981	1020
PBA 7	981	1020

SECTION 11. MODIFIED STANDARD SPECIFICATION SECTIONS

SECTION 11-1. (BLANK)

SECTION 11-2. ASPHALTS

Asphalt shall conform to the provisions in this Section 11-2, "Asphalts" and the section entitled "Asphalt" in Section 8-1, "Miscellaneous," of these special provisions. Section 92, "Asphalts," of the Standard Specifications shall not apply.

SECTION 92: ASPHALTS

92-1.01 DESCRIPTION

Asphalt shall consist of refined petroleum or a mixture of refined liquid asphalt and refined solid asphalt, prepared from crude petroleum. Asphalt shall be:

A. Free from residues caused by the artificial distillation of coal, coal tar, or paraffin.
B. Free from water.
C. Homogeneous.

92-1.02 MATERIALS

92-1.02(A) GENERAL

The Contractor shall furnish asphalt in conformance with the Department's "Certification Program for Suppliers of Asphalt." The Department maintains the program requirements, procedures, and a list of approved suppliers at:

http://www.dot.ca.gov/hq/esc/Translab/fpmcoc.htm.

The Contractor shall ensure the safe transportation, storage, use, and disposal of asphalt.

The Contractor shall prevent the formation of carbonized particles caused by overheating asphalt during manufacturing or construction.

92-1.02(B) GRADES

Performance graded (PG) asphalt binder shall conform to the following:

Performance Graded Asphalt Binder

Property	AASHTO Test Method	Specification Grade				
		PG 58-22 [a]	PG 64-10	PG 64-16	PG 64-28	PG 70-10
Original Binder						
Flash Point, Minimum °C	T48	230	230	230	230	230
Solubility, Minimum % [b]	T44	99	99	99	99	99
Viscosity at 135°C, [c] Maximum, Pa·s	T316	3.0	3.0	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C	T315	58	64	64	64	70
Minimum G*/sin(delta), kPa		1.00	1.00	1.00	1.00	1.00
RTFO Test [e], Mass Loss, Maximum, %	T240	1.00	1.00	1.00	1.00	1.00
RTFO Test Aged Binder						
Dynamic Shear, Test Temp. at 10 rad/s, °C	T315	58	64	64	64	70
Minimum G*/sin(delta), kPa		2.20	2.20	2.20	2.20	2.20
Ductility at 25°C Minimum, cm	T51	75	75	75	75	75
PAV [f] Aging, Temperature, °C	R28	100	100	100	100	110
RTFO Test and PAV Aged Binder						
Dynamic Shear, Test Temp. at 10 rad/s, °C	T315	22 [d]	31 [d]	28 [d]	22 [d]	34 [d]
Minimum G*sin(delta), kPa		5000	5000	5000	5000	5000
Creep Stiffness, Test Temperature, °C	T313	-12	0	-6	-18	0
Maximum S-value, MPa		300	300	300	300	300
Minimum M-value		0.300	0.300	0.300	0.300	0.300

Notes:

a. For use as asphalt rubber base stock for high mountain and high desert area.
b. The Engineer will waive this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt."
c. The Engineer will waive this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.
d. Test the sample at 3°C higher if it fails at the specified test temperature. G*sin(delta) shall remain 5000 kPa maximum.
e. "RTFO Test" means the asphaltic residue obtained using the Rolling Thin Film Oven Test, AASHTO Test Method T240 or ASTM Designation: D 2827.
f. "PAV" means Pressurized Aging Vessel.

Performance based asphalt (PBA) binder shall conform to the following:

Performance Based Asphalt Binder

Property	AASHTO Test Method	Specification Grade PBA 6a	PBA 6a(mod)	PBA 6b	PBA 7
Absolute Viscosity (60°C), Pa·s($x10^{-1}$) [a]	T202				
Original Binder, Minimum		2000	2000	2000	1100
RTFO Test Aged Residue [b], Minimum		5000	5000	5000	3000
Kinematic Viscosity (135°C), $m^2/s(x10^{-6})$	T201				
Original Binder, Maximum		2000	2000	2000	2000
RTFO Test Aged Residue, Minimum		275	275	275	275
Absolute Viscosity Ratio (60°C), Maximum	—				
RTFO Test Visc./Orig. Visc.		4.0	4.0	4.0	4.0
Flash Point, Cleveland Open Cup, °C	T48				
Original Binder, Minimum		232	232	232	232
Mass Loss After RTFO Test, %	T240	0.60	0.60	0.60	0.60
Solubility in Trichloroethylene, % [c]	T44				
Original Binder, Minimum		Report	Report	Report	Report
Ductility (25°C, 5 cm/min), cm	T51				
RTFO Test Aged Residue [b], Minimum		60	60	60	75
On RTFO Test Aged Residue, °C	[f]				
1 to 10 rad/sec: SSD [e] ≥ 0 and Phase Angle (at 1 rad/sec) < 72°		—	35	—	—
On Residue from:	R28				
PAV [g] at temp., °C		100	100	100	110
Or Residue from Tilt Oven [f] (@113°C), hours		36	36	36	72
[e] SSD ≥ -115(SSV)-50.6, °C	[f]	—	—	—	25
Stiffness,	T313				
Test Temperature, °C		-24	-24	-30	-6
Maximum S-value, MPa		300	300	300	300
Minimum M-value		0.300	0.300	0.300	0.300

Notes:

a. Absolute viscosity (60°C) will be determined at one sec^{-1} using ASTM Designation: D 4957 with Asphalt Institute vacuum capillary viscometers.
b. "RTFO Test Aged Residue" means the asphaltic residue obtained using the Rolling Thin Film Oven Test (RTFO Test), AASHTO Test Method T240 or ASTM Designation: D 2827.
c. There is no requirement; however results of the test shall be part of the copy of test results furnished with the Certificate of Compliance.
d. "Residue from Tilt Oven " means the asphalt obtained using California Test 374, Method B, "Method for Determining Asphalt Durability Using the California Tilt-Oven Durability Test."
e. "SSD" means Shear Susceptibility of Delta; "SSV" means Shear Susceptibility of Viscosity.
f. California Test 381.
g. "PAV" means Pressurized Aging Vessel.

92-1.02(C) SAMPLING

The Contractor shall provide a sampling device in the asphalt feed line connecting the plant storage tanks to the asphalt weighing system or spray bar. The sampling device shall be accessible between 600 and 750 mm above the platform. The Contractor shall provide a receptacle for flushing the sampling device.

The sampling device shall include a valve:

A. With a diameter between 10 and 20 mm.
B. Manufactured in a manner that a one-liter sample may be taken slowly at any time during plant operations.
C. Maintained in good condition.

The Contractor shall replace failed valves.

In the presence of the Engineer, the Contractor shall take 2 one-liter samples per operating day. The Contractor shall provide round friction top containers with one-liter capacity for storing samples.

92-1.03 APPLYING ASPHALT

Unless otherwise specified, the Contractor shall heat and apply asphalt in conformance with the provisions in Section 93, "Liquid Asphalts."

The Contractor shall apply paving asphalt at a temperature between 120°and 190°C. The Engineer will determine the exact temperature of paving asphalt.

92-1.04 MEASUREMENT

If asphalt is paid as a contract work item on a mass basis, the Department will measure asphalt by the tonne under the provisions for determining the mass for payment of liquid asphalt in Section 93, "Liquid Asphalt."

The Engineer will determine the mass of asphalt from volumetric measurements if the Contractor:

A. Uses partial loads of asphalt.
B. Uses asphalt at locations other than a mixing plant and no suitable scales are available within 35 km.
C. Delivers asphalt meeting either of the following:

    1. In calibrated trucks and each tank is accompanied by its measuring stick and calibration card.
    2. In trucks equipped with a calibrated thermometer that determines the asphalt temperature at the time of delivery and equipped with a vehicle tank meter meeting Section 9-1.01, "Measurement of Quantities," for weighing, measuring, and metering devices.

If the Contractor furnishes asphalt concrete from a mixing plant producing material for only one project, the Department will determine the amount of asphalt from volumetric measurements by measuring the amount in the tank at the start and the end of the project provided the tank is calibrated and equipped with its measuring stick and calibration card. The Engineer will determine pay quantities in conformance with the following:

A. Before converting the volume to mass, the Engineer will reduce the volume measured to that which the asphalt would occupy at 15°C.
B. The Engineer will use the Conversion Table in Section 93, "Liquid Asphalts," and the following table:

Average Mass and Volumes of Paving Asphalt

Grade	Liters per Tonne at 15°C	Grams per Liter at 15°C
PG 58-22	981	1020
PG 64-10	981	1020
PG 64-16	981	1020
PG 64-28	981	1020
PG 70-10	981	1020
PBA 6a	981	1020
PBA 6a (mod)	981	1020
PBA 6b	981	1020
PBA 7	981	1020

12-8.04 WOOD WINDOWS

PART 1. – GENERAL

SUMMARY.--

Scope.--This work shall consist of furnishing and installing vinyl-clad wood-framed windows in accordance with the details shown on the plans and these special provisions. Window product types shall include the following:

Fixed windows.

Related work.—

Glazing.--glazing for wood windows, including those specified to be factory glazed, shall conform to the requirements specified under "Glazing" in Section 12-8, "Doors and Windows," of these special provisions.

REFERENCES.--

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ASTM E 548.(1994) General Criteria Used for Evaluating Laboratory Competence
AAMA/NWWDA 101/I.S.2-1997 Voluntary Specifications for Aluminum, Vinyl (PVC), and Wood Windows and Glass Doors
ASCE 7-95 Minimum Design Loads for Buildings and Other Structures

DEFINITIONS.--

C: Commercial.
HC: Heavy Commercial.
LC: Light Commercial.

Performance grade number, included as part of the AAMA/NWWDA product designation code, is actual design pressure in pascals used to determine structural test pressure and water test pressure.

Structural test pressure, for uniform load structural test, is equivalent to 150 percent of design pressure.

Minimum test size is smallest size permitted for performance class (gateway test size). Products must be tested at minimum test size or at a size larger than minimum test size to comply with requirements for performance class.

PERFORMANCE REQUIREMENTS.--

General.--Wood windows shall be provided capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified. Test window shall be minimum size required by gateway performance requirements for determining compliance with AAMA/NWWDA 101/I.S.2 for both gateway performance requirements and optional performance grades.

Test Pressure:	15 percent of positive design pressure, but not less than 140 Pa or more than 580 Pa.	AAMA/NWWDA 101/I.S.2
Forced-Entry Resistance	Performance Level 10	ASTM F 588.
Thermal Transmittance	wood windows with a whole-window U-value maximum indicated at 24-km/h exterior wind velocity and winter condition temperatures when tested according to.	AAMA 1503 ASTM E 1423 NFRC 100
U-Value	3.17 W/sq. m x K.	
Sound Transmission Class	glazed windows rated for not less than 30 STC	ASTM E 90 and determined by ASTM E 413.

SUBMITTALS--

Product Data: Include construction details, material descriptions, fabrication methods, dimensions of individual components and profiles, hardware, finishes, and operating instructions for each type of wood window indicated.

Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other Work, operational clearances, and the following:

Mullion details, including reinforcement and stiffeners.
Joinery details.
Expansion provisions.
Flashing and drainage details.
Weather-stripping details.
Thermal-break details.
Glazing details.
Window cleaning provisions.
Samples for Initial Selection: For units with factory-applied color finishes.
Samples for Verification: For wood window components required, prepared on Samples of size indicated below.
Main Framing Member: 300-mm long, full-size sections of extrusions with factory-applied color finish.
Hardware: Full-size units with factory-applied finish.
Weather Stripping: 300-mm long sections.

The Engineer reserves the right to require additional samples that show fabrication techniques, workmanship, and design of hardware and accessories.

Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type, grade, and size of wood window. Test results based on use of down-sized test units will not be accepted.

Maintenance Data: For operating hardware and weatherstripping finishes to include in maintenance manuals.

QUALITY ASSURANCE.--

The window installer shall be acceptable to the wood window manufacturer for installation of units required for this Project. Manufacturer's independent testing agency shall have experience and capability to conduct the testing indicated, as documented according to ASTM E 548. Wood windows shall be obtained through one source from a single manufacturer.

Product Options.--The plans indicate size, profiles, and dimensional requirements of wood windows and are based on the specific system indicated. Intended aesthetic effects shall not be altered, as judged solely by Engineer. If modifications are proposed, comprehensive explanatory data shall be submitted to the Engineer for review and final approval.

Fenestration Standard.--Windows shall comply with AAMA/NWWDA 101/I.S.2, "Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors," for minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

Glazing Publications.--Comply with published recommendations of glass manufacturers and GANA's "Glazing Manual" unless more stringent requirements are indicated.

PROJECT CONDITIONS.--

Established Dimensions.--Where field measurements cannot be made without delaying the Work, opening dimensions shall be established and Work resumed with fabricating wood windows without field measurements. Wall construction shall be coordinated to ensure that actual opening dimensions correspond to established dimensions.

WARRANTY.--

Special Warranty: The Contractor shall provide manufacturer's standard form in which manufacturer agrees to repair or replace wood windows that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to failure to meet performance requirements; structural failures including excessive deflection; water leakage, air infiltration, or condensation; faulty operation of movable sash and hardware; deterioration of metals, metal finishes, and other materials beyond normal weathering; and insulting glass failure.

A warranty period of 5 (five) years from date of substantial completion shall be provided for frames, metal finishes, and glass components.

PART 2 PRODUCTS—

MANUFACTURERS.—

Available Manufacturers.--Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Vinyl-Clad Wood Windows:

Fixed Windows:
Andersen Commercial Group; Andersen Corp.
Crestline; a division of SNE Enterprises, Inc.; a Nortek Company.
Weather Shield Mfg., Inc.

MATERIALS, GENERAL--

Wood.--Clear ponderosa pine or another suitable fine-grained lumber; kiln-dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 0.8 mm deep by 51 mm wide; water-repellent preservative treated.

Color and Gloss: As selected by the Engineer from manufacturer's full range.

Vinyl for Cladding.--Consisting of a rigid PVC sheath, made from PVC complying with ASTM D 4726, not less than 0.9-mm average thickness, in permanent, integral color finish as selected from manufacturer standard palette, mechanically bonded to exterior wood sash and frame members.

Wood Trim and Glazing Stops: Material and finish to match frame members.

Clad Trim and Glazing Stops: Clad-wood material; material and finish to match clad frame members.

Fasteners.--Aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by manufacturer to be noncorrosive and compatible with wood window members, cladding, trim, hardware, anchors, and other components.

Exposed Fasteners.--Unless unavoidable for applying hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.

Anchors, Clips, and Accessories.--Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.

Reinforcing Members: Aluminum, nonmagnetic stainless steel, nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.

GLAZING.--

Glass and Glazing Materials: Refer to Division 8 Section "Glazing" for glass units and glazing requirements applicable to glazed wood window units.

ACCESSORIES--

Grilles (False Muntins): Provide grilles in designs indicated, for removable application to inside of each sash lite.

Material: Prefinished wood.

Design: Per contract documents.

Color: Color shall be selected from manufacturer’s standard color palette by the Engineer after the award of the contract.

FABRICATION.--

General.--Fabricate wood windows, in sizes indicated, that comply with AAMA/NWWDA 101/I.S.2 for performance class and performance grade indicated. Include a complete system for assembling components and anchoring windows.

General: Fabricate wood windows, in sizes indicated, that comply with requirements and that meet or exceed AAMA/NWWDA 101/I.S.2 performance requirements for the following window type and performance class. Include a complete system for assembling components and anchoring windows.

Fabricate wood windows that are reglazable without dismantling sash or ventilator framing.

Mullions: Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design loads of window units.

Factory-Glazed Fabrication: Except for light sizes in excess of 2500 mm width plus length, glaze wood windows in the factory where practical and possible for applications indicated. Comply with requirements in Division 8 Section "Glazing" and with AAMA/NWWDA 101/I.S.2.

Glazing Stops.--Provide nailed or snap-on glazing stops coordinated with Division 8 Section "Glazing" and glazing system indicated. Provide glazing stops to match sash and ventilator frames.

Delete first paragraph and subparagraphs below if bow or bay window units.

Clear pine head and seat boards.

Top and bottom plywood platforms.

Exterior head and sill casings and trim.

Support brackets.

Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

WOOD FINISHES--

Factory-Finished Windows: Provide fabricator's standard factory finish. Apply finish to exposed exterior and interior wood surfaces.

Color: As selected by the Engineer from manufacturer's full range.

EXECUTION--

EXAMINATION--

Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances; rough opening dimensions; levelness of sill plate; coordination with wall flashings, vapor retarders, and other built-in components; and other conditions affecting performance of work.

Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.

Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 76 mm of opening.

Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.

Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION--

General: Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components; Drawings; and Shop Drawings.

Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.

Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.

Metal Protection: Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified in "Dissimilar Materials" Paragraph in Appendix B in AAMA/NWWDA 101/I.S.2.

PROTECTION AND CLEANING--

Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.